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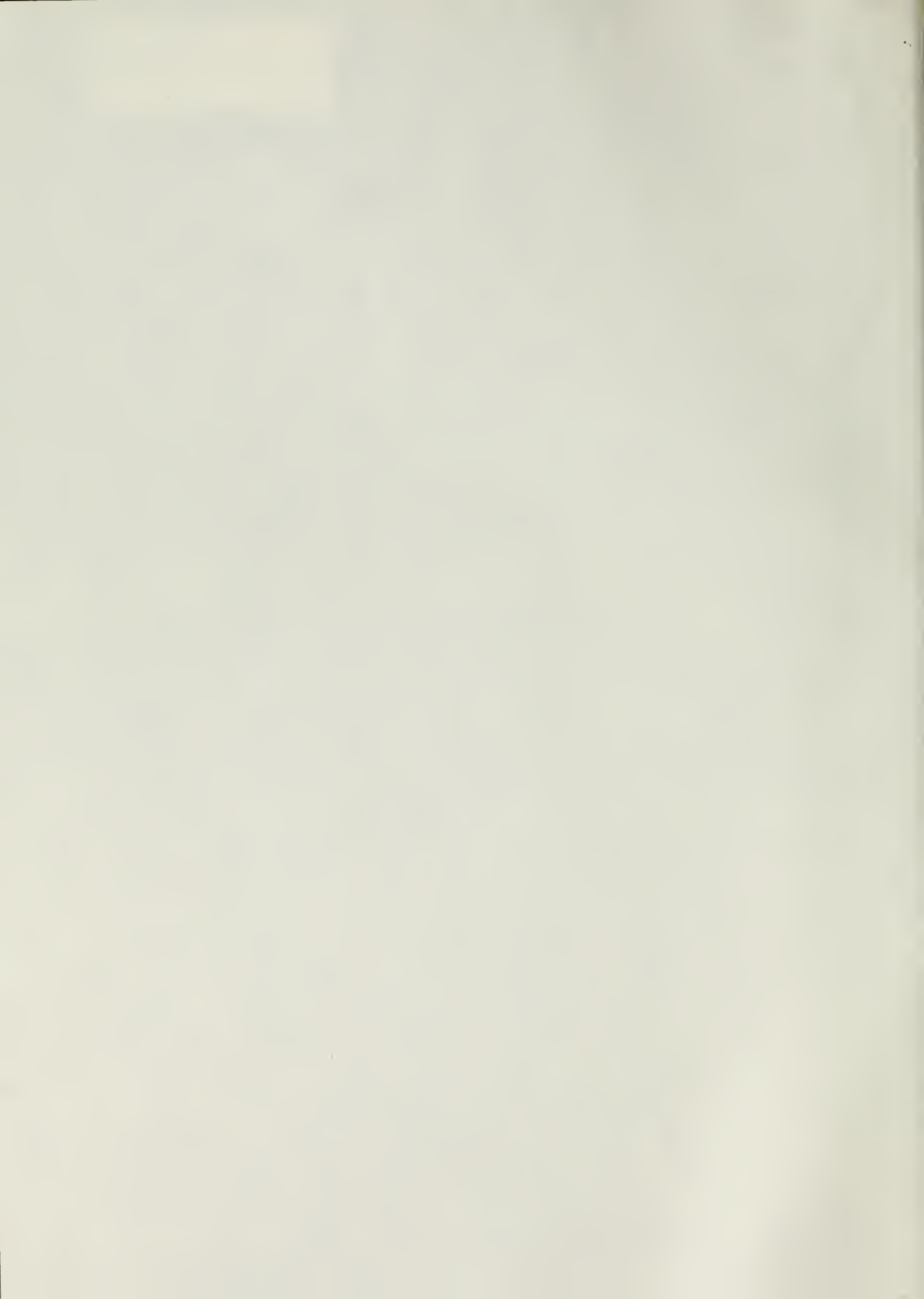
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Improving Education and Training for Economic Development
The Proceedings and Recommendations of the July 23, 1992 Working Session
Presented by: Joan M. Stoia, Director of Career Services,
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A decade ago, the Massachusetts economy struggled through a period marked by the decline and disappearance of key elements within its manufacturing sector accompanied by tremendous job losses, particularly among older workers. At the time, most of the experts and policy makers viewed what was occurring as an inevitable shakeout among hundred year old industries that were no longer either competitive or relevant to the state's new economic destiny. The terms used to describe what was happening -- terms like evolution and restructuring -- reflected a belief that the changes, though tragic for individual workers, were natural, inevitable and of a kind Americans had experienced before. It made sense, this old making way for the new. Even if we had not actually seen it coming, when faced with the need to change we would simply substitute a new generation of goods and services produced in high tech environments with smarter workers. At least two assumptions informing that response have proven to be false; one, that there would always be enough qualified people to satisfy our manpower needs, and two, that it would take a long time for the new industries to become "mature" themselves.

A number of innovative programs emerged in the state during the 1980's to ameliorate the suffering of individual workers and stabilize struggling businesses. Programs to help dislocated workers update skills and start new enterprises, to train young people in emerging technologies, to help companies identify sources of new capital, to help the poor become economically self-sufficient and to create partnerships between businesses and universities formed an education, employment and training network. Ten years later, this loose confederation of schools, employers, government agencies, private contractors, colleges and universities is still in business. Hard times in both the old and the new industries and a similar set of economic circumstances to those which existed a few years ago suggest that there are no once-and-for-all solutions to economic problems. We are beginning to realize that there is no particular magic in any one set of industries, but that the answers may be as much in the "who" (workers and managers), the "how" (the way work is organized) and the "where" (a sharply competitive global playing field) as in the "what" (goods and services).

Training and education initiatives that enhance the knowledge base of workers, increase the sophistication of managers, improve quality and productivity, and expand the range of technologies available to businesses are some of the means by which Massachusetts, faced with the worst economic situation in a decade, might begin to manage, and ultimately achieve mastery over, what we have come to recognize as continual and accelerated industrial change.



PROCEEDINGS

On July 23, 1992 representatives from business, government, education and the community met to explore the connections between workforce quality and economic prosperity, and to determine the role of the statewide education and training system in developing and preserving that quality. The groups reviewed the most recent employment trend and projections data available from the Massachusetts Department of Employment and Training, learned about several business-based workplace education models, and discussed the specific education and training needs of workers across the entire age/skill continuum.

This paper summarizes those proceedings and presents the recommendations of the participants for the development of a coordinated, well-articulated plan to support the state's key industries. For the purpose of this discussion, the education and training system will be broadly defined to include existing public, private and quasi-public agencies and programs, educational institutions, and independent business and community efforts.



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Review of the Data on Employment in Massachusetts: Past Trends and Future Directions

Between 1983 and the beginning of the current recession, Massachusetts industries performed reasonably well, exhibiting a 16.1 percent increase in overall employment. The largest gains were in the fields of Construction (72 percent), Finance, Insurance and Real Estate (28.9 percent), Services (27.0 percent) and Trade (20.7 percent). Within Services, Health was among the strongest performers with a five year increase of 11.2 percent. Manufacturing employment declined 7.0 percent with the worst losses occurring in non-durable goods (-10.6 percent). Within specific occupations, employment among Executive, Administrative and Managerial workers grew by 24.8 percent, with Sales workers posted the second highest gain at 20.1 percent. The number of Machine Operators and Assemblers declined by 59,000, or 23.4 percent, followed by selected Service and Laborer categories.

These data, provided by the Massachusetts Department of Employment and Training (see Appendix) tell the recent occupational and industrial history of the Commonwealth--reliance on large numbers of relatively well paid "knowledge workers" on the one hand and almost as many low wage service workers on the other, continued erosion of our manufacturing base, and employment instability among workers with the fewest skills.

According to the DET, we can expect slower job growth in the future among most sectors and further deterioration in manufacturing. Workers with the highest educational attainment levels will continue to benefit from growth in a number of occupations. Racial minorities, particularly Hispanics, who are at present are much less likely than whites to complete high school, will remain clustered in low wage, low skill jobs.

Challenging the Assumptions

Economists formulate projections based on their analysis of the past and available information about the forces they expect to drive economic events in the future. Projections, positive or negative, are not determinative, but they are useful as a mirror to reflect the consequences of recent economic policies. In formulating employment and training goals as part of a larger economic plan, we should take a hard look at these data and at the questions they raise:

- Do we like the picture presented by the data? What does it say about the future quality of life in the Commonwealth?
- To what extent can employment and training policy change the course of these projections?
- Three out of the top five areas projected for growth are in health. Does this represent an over dependence on one industry? How might cost or regulatory factors alter the projected demand for employees within a sizeable number of these occupations?

- What about the rise in temporary employment not reflected in these data? As employers struggle to cut costs and retain flexibility, will some occupations involve more part-time/part year work than others? How will we identify them?
- How will changes in the scale and scope of firms, and productivity and quality measures such as work teams, impact the kinds of jobs required in the future? Do these projections take any of those issues into account?
- To what extent have corporate restructuring and downsizing reversed the growth in administrative and managerial jobs seen during the 1980's? Can we be certain that college educated workers will remain in high demand, immune from future layoffs?
- Will productivity improvements and automation in service industries impact the fortunes of so called "knowledge workers"?
- Does a college degree in any field offer the same degree of opportunity or are some fields better than others?
- What do we know about the inherent volatility of occupations located in areas projected to grow, such as travel and education? How many of the growth occupations listed among the projections rely on consumer behavior or local tax revenues?
- How well do we communicate labor market information to students, trainees and other job seekers?
- Given the widening gulf between high skill/higher wage jobs and low skill/lower wage occupations, how much real incentive exists for the economically disadvantaged to reach higher?
- With continuing trouble in manufacturing, how realistic is it for older displaced workers to expect to apply their invaluable "know how" -- experiential, technical, social -- in comparable work settings ever again? Should we try to preserve their knowledge?

Behind these concerns is one overriding question: Is there a threshold below which the imbalance between services and manufacturing threatens the viability of the economy? As a society, can we afford not to make things anymore?

Because industries drive jobs, decisions about the specific elements of an employment and training policy -- worker re-training, literacy and entrepreneurship programs, etc. -- will ultimately be dictated by the needs of the industries which Massachusetts decides to nurture.

The goal of this paper is to determine whether or not there are universal "givens" pertaining to workers, managers and the organization of work that impact the performance of our target industries? How much direct intervention or coordination by the government will be required to ensure their success? What are some examples of the interventions that address these common issues and seem to work best?

Workplace Education: Three Case Studies

Biogen

According to manufacturing manager Christine Carberry, Biogen is a fully integrated pharmaceuticals firm that creates products from genetically engineered organisms for use as alternatives to traditional pharmaceuticals. Its mission is to take products from development through clinical trials to commercialization. Like most biotechnology firms, Biogen began as a collection of scientists who "did everything from washing test tubes to writing scientific papers". On its way to developing a workforce of over three hundred people, the company identified two principle challenges: the need to continuously upgrade its employees' scientific knowledge and to recruit appropriately qualified manufacturing workers. The strategies it employed were:

- College and university courses paid for by the company through tuition reimbursement;
- A heavy in-house training investment -- 10 percent of its total manufacturing hours -- in collaboration with higher educational institutions,
- The creation of a unique traineeship program which qualifies "trainable" high school graduates for entry-level positions in the firm.

Now 50 percent of Biogen's employees avail themselves of courses via tuition reimbursement. The company has hired 75 percent of the participants in its trainee program, people whom, according to Carberry, "we would not have hired without the internships." In addition to becoming invested in continual learning, Biogen also realized that it has a stake in science education at the high school level and in helping students and parents see biotech as an attainable career.

United Electric Controls

Under pressure to survive amid declining markets, the only course of action for this sixty year old sensor and temperature control manufacturer was change. United Electric needed to improve quality and respond to market forces by adopting a philosophy of "continuous improvement". At that time, 40 percent of the UE workforce had limited English proficiency. The firm realized from the start that the development and practice of reliable methods could not begin until all its employees shared a common language.

Committed to creating a "continuous improvement" environment, the company took the following action:

- In-house ESL instruction for employees;
- Ergonomic training for workers offered with the aid of a government grant;
- A skills development program to qualify workers for each pay grade;
- Forty hours of classroom training a year for each employee,
- Two day seminars at the plant for customers and suppliers.

UE transformed itself, cutting lead time from 10 weeks to one week, improving due date delivery from 60 to 90 percent on time, reducing inventories, and ultimately, receiving a Shingo award for manufacturing excellence in 1990. It achieved its status as a "continuous improvement" company by becoming a "continuous education" employer where each of its 340 employees is both a learner and a teacher.

TempPro Company

A much smaller member of the temperature sensing industry, TempPro of Northampton faced similar due date and inventory problems along with an under prepared workforce. Of particular concern was the fact that employees lacked familiarity with the company's own product lines. To improve production methods, ensure quality and upgrade worker skills, TempPro:

- Developed in-house and externally offered training courses in conjunction with local educational institutions, and
- Created a certification process for workers with the help of the local Private Industry Council.

Progress meant changing management's attitude toward the costs associated with training. Investing in workers positioning the company in the market rather than being controlled by it and emphasizing outcomes as well as high quality processes has proved a successful formula.

Three companies represent two generations of technology -- present and futuristic -- and a shared need for more sophisticated skills than the labor market can currently deliver. What they have in common are six beliefs that form a truly revolutionary credo for any company that would be excellent as well as a blueprint for a new company-centered, education and training model:

- Proactive management, a top/down commitment to changing the organizational culture and ownership of the process by everyone in the firm;
- Appreciation of the barriers to recruitment, employment and job performance created by low basic skills, gender, economic disadvantage, culture and language differences;
- Adoption of a "worker as learner and teacher" philosophy that promotes a sense of interdependence among everyone in the firm;
- Incorporation of education and training as an essential part of the job, or, as Biogen's Carberry puts it "If our employees are not engaged in continuous learning, they are falling behind";
- Recognition of the importance of external stakeholders to the success of the enterprise -- customers, suppliers, parents, high school students,
- Emphasis on evaluation and outcomes.

Task Group Reports on Employment and Training

After the presentations by model workplace education programs, the participants at the session broke into four task groups to discuss ways in which the needs of workers at various age and skill levels are being addressed by the E/T system and how that system might be adapted to meet future challenges. Their recommendations follow.

Group I: The Training and Education Needs of Those Presently Employed

Our employer case histories provided ample material for a discussion of the current workforce. Though the conversation centered on manufacturing, many of the issues and recommendations are relevant to services.

In a nation of immigrants, there have always been basic skill deficiencies and linguistic and cultural diversity among workers. One key difference between past and present is that the way work was formerly organized deliberately compensated for the lack of homogeneity in the labor force. Today, work teams, statistical process control, the need for worker participation in the development of reliable methods, and the size, scale and complexity of either the goods being produced or the fabrication (or service delivery) process make it impossible to proceed unless everyone is speaking the same language. Language is a useful metaphor for a list of contemporary worker prerequisites ranging from adequate verbal skills, literacy, numeracy, computing and the ability to operate complex automated systems, to a shared vision of the organization's purpose and mission. Organizational culture has been defined as simply "the way we do things around here". Given today's business realities, that will not and cannot ever be the same again.

The most successful organizational cultures will be the ones where managers are as engaged by the production process as workers, where they understand and appreciate cultural differences, where they are results oriented, and view continuous education as an integral part of each person's job. The creation of total learning environments must accompany the development of total quality workplaces.

In turn, employees must also be actively engaged by the work. As with managers, this is not always the case. Old attitudes die hard, but in order to produce the best goods and services, each member of the enterprise must be prepared to add value and have his or her efforts measured and evaluated in light of the organization's mission and goals and international standards of quality. For many of those who are currently employed, it will not be an easy adjustment to make. Part of the answer to worker motivation will be for employers to reward learning by tying pay increases to measurable increases in skill. This task group, while committed to the concept that change must be initiated, owned and managed by the individual firm, made six recommendations for government's involvement:

- While there is no question that Massachusetts possesses an impressive set of training and business support programs, their existence, purpose and location is not always known to prospective clients. Government needs to catalogue and communicate information about 1) the types of assistance available and 2) the guidelines and regulations for technical assistance. The need for information about ESL and basic skills programs is particularly pressing.
- Because it is possible for an employer to require the services of more than one agency, there needs to be a method, similar to the case management system in human services, whereby several agencies can work together smoothly at the same site and buffer the client from bureaucratic red tape.
- Although economic survival is a powerful incentive, task group members favored tax incentives for businesses and individual workers who engage in "continuous education".
- Joint worker education programs developed at community colleges in partnership with local businesses should be better funded.
- Colleges, universities and businesses should be encouraged to offer training in so-called "soft skills" for managers.
- Finally, as UE's Ritzau observed during his presentation "workforce development goes hand in hand with economic development". Because the number of companies currently engaged in self assessment and improvement is woefully small, government should stimulate more business involvement by offering low cost assessment services and finding additional ways to publicize and reward examples of excellence within each industry.

Group II: The Present and Future Training and Education needs of Declining Industries

Many of the concerns which emerged in Group I also appeared in Group II as it considered the needs of workers and firms under the greatest pressure to survive. The discussion relates back to the question about whether there is something inevitable about manufacturing declines. What causes an individual manufacturer to lose ground? Once identified, can these conditions be reversed?

Clearly one of the issues is workforce preparedness. In an earlier era, the education system prepared young people from a variety of linguistic and ethnic backgrounds for jobs on the assembly line. Whether it continues to do that today or does something else entirely is arguable. Whatever the reason, there is a wide disparity between the basic skills, English language proficiency and work habits which businesses need and the competence level of many prospective workers. While no comprehensive or vocational high school in the world can produce graduates who are familiar with all the practices of individual firms, there must be more emphasis in school on "learning how to learn on the job". Learning to add value, to head off problems before they occur, to contribute new ideas and to adjust to changing circumstances will make it less likely that employees will be laid off and in the first place easier for them to find new work when that does happen.

While employers have legitimate concerns about the basic skills and trainability of workers, it is not clear that they are doing enough to develop the people they have. Once a firm is on the ropes it is difficult to impact management's thinking about the value of training. Ironically, troubled firms are precisely where that commitment should be made. As one member of the task group observed, "If we keep doing things the same way we have always done them, we'll keep getting the same results". Given that the pace of technological change and foreign competition will not go away, management has no other choice than to begin doing things differently. Government has both a facilitation and a direct service role in the process. Task Group II's recommendations regarding displaced workers included a mix of government intervention and private sector initiative:

- More opportunities for peer support and greater emphasis on self-employment at worker assistance centers;
- Better understanding of the needs of business by the educational system;
- A build-up of educational resources targeted at firms with the most acute problems, including reading and writing tutorials and English language classes for workers who need them, and programs that help firms assess and prioritize service needs before embarking on a particular course of action;
- Long range improvements in elementary and secondary schools to allow employers to get out of the basic skills business and into the full scale development of firm-specific training and education activities;

- Information sharing, reciprocal plant tours and shared briefings in technical advances in other countries to encourage companies to talk to one another;
- Less concern by businesses about training their workers for the competition, citing UE's experiences with reduced turnover and increased employee referrals,
- Cultivation of new and existing businesses by the state; monitoring conditions and practices inside each of its major industries and faster response to early signs of trouble. Industry should be stewarded like any other renewable resource.

Group III: The Training and Education Needs of the Under-employed and the Long-term Unemployed

This group focused on the barriers to employment among the poor, uneducated and economically disadvantaged, as well as on the needs of white and blue collar workers impacted by the current recession.

The problems of the poor and disenfranchised with respect to employment are well-documented. Massachusetts has done a great deal to help citizens trapped in the cycle of helplessness and dependency train for and obtain good jobs. Are current efforts enough? Are there emerging issues not being addressed adequately by the E/T system?

While unemployment among African Americans, Hispanics and Southeast Asian immigrants may once have seemed an isolated social problem, it has come to be a great deal more central to the long term viability of businesses in the state. In the coming years, over 50 percent of new entrants to the job market will come from minority groups. Chronic joblessness and low educational attainment rates among the poor is bad business. Problems that begin in junior high and high school make their way to the job market, where the ability to obtain and hold good jobs that support families is diminished by inadequate academic preparation, fundamental needs such as day care, transportation, clothing, etc., information gaps about job search strategies and world of work skills, and psychological problems such as substance abuse and low self-esteem. Finding the right mix of services is often difficult because employment programs do not always address poverty issues and E/T programs designed principally to alleviate poverty sometimes fail to take industry demand and labor supply issues into consideration. In order to improve coordination and services in this area, the task group suggested five areas for government action:

- Greater flexibility in the duration of time allowed to address worker re-education, basic skills and job training issues;

- Coordination and consolidation of the alphabet soup of poverty and unemployment programs, evaluation of those programs to determine their effectiveness and more coherent organization at the state level;
- School-to-work transition programs such as cooperative education, apprenticeships and work study programs (provided they not shorten the school day) for current students and short term training programs in key technical areas for graduates;
- Incentives such as tuition reimbursement or loan options similar to the student loan program for college students to provide a living wage during training,
- Job training that links young minority males to employers and offers meaningful work at an adequate training wage to provide the kinds of skills and experiences that lead to good permanent jobs and undermine any attachment to the underground economy.

At the opposite end of the spectrum are skilled employees, blue collar and professional, who are experiencing unemployment for the first time. Many do not understand the fundamental shifts in the workplace which caused them to lose their jobs and which continue to make it harder for them to find work elsewhere.

Many have spent years in compartmentalized jobs within large organizations, where they may actually have become de-skilled in key areas such as office and plant automation. Older, with family responsibilities and caught in the poor housing market, they are limited in how far they can go to look for work. Recommendations by the task group considering these workers involve worker assistance programs and the development of a concerted response to the unemployed by post-secondary institutions:

- Peer support groups for networking and sharing productive job search strategies;
- Workshops on new workplace realities, training in business software, resume writing and job seeking, and job fairs designed to bring the unemployed into direct contact with employers;
- Better information about high demand occupations and the short and long term training programs required to qualify for them,
- Changes in curriculum design and delivery, for example evening and weekend classes that make it possible for people to work at least part-time and re-train for new careers at the same time.

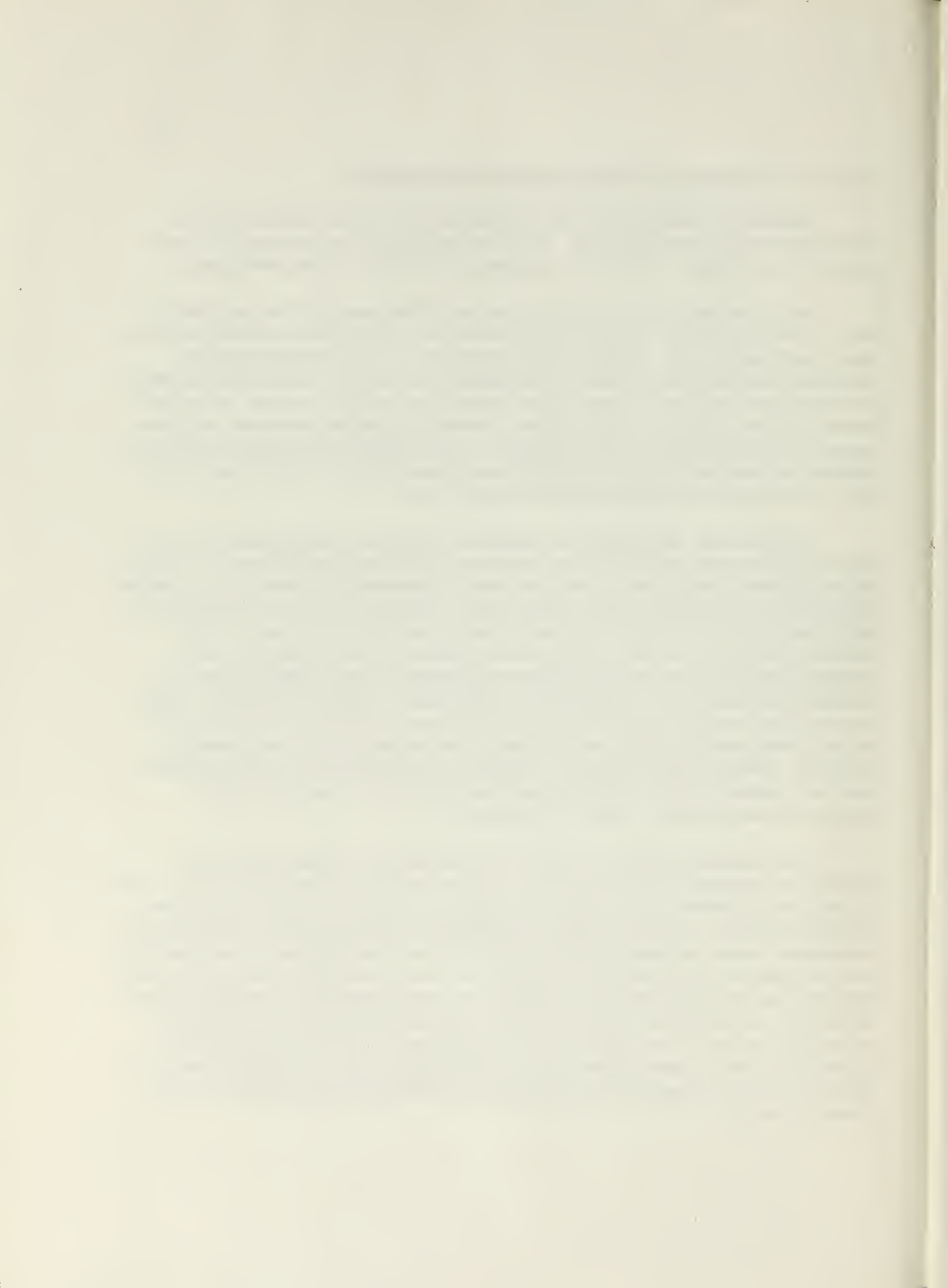
Group IV: The Training and Education Needs of Future Workers

Tomorrow's workforce should be both educated and trained to make high value contributions to high value added jobs. To do this, according to the members of the task group on future workers, we will need an entirely different kind of educational system.

One of the problems with the discussion about the education and training system is that it is not one system, but a collection of bureaucracies with different missions that do not always work together well. Outside vocational education and the community colleges, elementary, secondary and post-secondary education have few direct connections to either the business sector or employment issues. About twenty-five years ago educators, parents and students rejected the assembly line's influence over teaching and the curriculum, with good reason but with nothing else to put in its place. The space race of the nineteen fifties and the emphasis on youth physical fitness in the sixties are two of the only times in recent history when a larger social imperative impacted educational policy.

The educational and occupational experiences of the baby boom generation, with its enormous influence on attitudes and the culture, eventually drove a wedge between education and employment. Ready access to low cost higher education and the promise of good paying professional careers made it possible for high school students who did even moderately well academically to attend college. Those who performed poorly in school went to work. Colleges absorbed huge numbers of high school graduates and were followed by large government and private sector organizations which gobbled up the college graduates. A college degree became both a credential and a certification. Until the late eighties, college graduates who wanted jobs were usually able to find them, which obscured a fifteen year decline in their earnings and the quality of jobs outside certain technical and business specialties. Today, a significant number of bachelor's level generalists hold jobs similar to those once intended for high school graduates and are almost as ill-prepared for the challenges of the workplace as the non-college bound.

An educational system that minimizes rote learning and emphasizes individual potential can open students up to a world of unlimited possibility. The danger is that without a strong sense of purpose and outcomes education for anything can become education for nothing in particular. Without educational leadership that shares a larger national, and even international, vision, that develops clear standards for individual and group achievement and workable strategies for helping students embrace and master a complex world where science, technology and commerce are part of their lives, our young people will continue to get half of what they, and we, need. We will continue to see an insufficient number of students intellectually engaged by math and science, fewer children of color persisting through and beyond high school, a limited understanding of the occupational and personal outcomes of education, and little recognition of the importance of life long learning and the continuous pursuit of new skills.



Few disagree that the place to begin is with elementary and secondary education. Group IV repeated themes raised in other groups and made four specific recommendations for improvement of the educational system:

- The establishment of goals for K through 12 that include mastery of advanced academic skills, measurement against national test scores, higher completion rates, and comparisons to achievement levels among students in other advanced countries;
- The development of new methods for financing education,
- Elimination of artificial barriers between working and learning by integrating practical experience and the classroom, promoting discussion between teachers and business practitioners and improved career guidance for students.

SUMMARY OF THE RECOMMENDATIONS

A workable education and employment plan will include:

- A complete assessment of the state resources currently devoted to education, training and business stabilization;
- Better coordination of the services we decide to continue after this assessment and better publicity about their existence, mission and requirements;
- An immediate infusion of money and resources to stimulate the development of workplace-based ESL and basic skills programs to address the short term needs of employers for able and contributing employees;
- A clearly articulated mission for elementary, secondary and post-secondary education that addresses the long term needs of learners and the economy, and recognizes the centrality of work to both the development of the individual and the overall health and security of the Commonwealth;
- The expectation that educational institutions at all three levels have a vital role to play in preparing young people to lead productive lives as workers and as citizens;
- The establishment of measurable academic performance and achievement goals that take into account international standards of excellence;

- Dramatic improvements in the dissemination of occupational information and delivery of career and job placement services in public high schools and colleges;
- Insistence upon the development of school to work transition programs at the high school and college level;
- A system of accountability that measures individual academic progress and institutional effectiveness in fostering individual achievement;
- The development of programs and educational strategies that emphasize "lifetime employability" among prospective workers;
- Government-funded assessment services for businesses wishing to examine their practices and tax credits or other incentives for businesses to engage in "continuous improvement",
- Tax credits or other incentives for employees who engage in "continuous education".

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